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NAVY DEPARTMENT

BUMED NEWS LETTER

a digest of timely information

Editor - Captain F. W. Farrar. (MC). U.S.N.

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ATTENTION, RESERVE MEDICAL OFFICERS

To

"OPERATION NAVAL RESERVE"

Week of 18 to 25 May 1947

OPERATION NAVAL RESERVE is a Naval Reserve recruiting publicity program which the Navy considers to be of major importance in the reactivation of the Naval Reserve.

By volunteering your services directly to the District Commandant, and by talking about the Reserve Program in your clubs and other organizations, you can give valuable help to the NAVAL RESERVE of which we are so justly proud.

Call your local Navy Recruiting Station or other Naval activity present for information regarding this program.

(Not Restricted)

Physiological Problems in the Treatment of Heart Disease: Recent work on the endocrine control of salt and water metabolism, and the use of the catheter technic for sampling the mixed venous blood and for measuring the pressure in the right auricle and ventricle have given a much clearer picture of the physiology of heart failure than was previously held, and allowed the author and co-workers to develop a more rational and successful therapy. This recent work has also shown that congestive failure is not a single entity.

The first break in the concept that congestive failure was a disease entity came with the realization that constrictive pericarditis was a causative factor totally different from the myocardial weakness or arrhythmias which commonly caused venous engorgement and dyspnea. Later came the concept of right, left, and combined types of ventricular failure. Then the etiologic factors - myocarditis, coronary insufficiency, and metabolic defects such as beriberi and desoxycorticosterone poisoning received recognition, and the striking effect of aging on myocardial reserve became apparent. A most important recent advance is the demonstration that in certain types of heart failure there is a slight but definite decrease in peripheral blood flow which diminishes cardiac output and work, but in other types the peripheral vascular bed remains dilated and the cardiac output high until a fatal stage of decompensation is reached. When hypertension, stenotic valve lesions, myocarditis or myocardial senescence are dominant factors, blood pressure is easily maintained by vasoconstriction and the cardiac output tends to fall. Such control is not effective in aortic insufficiency, arteriovenous fistulas or congenital arteriopulmonary shunts, or in the presence of bone diseases such as Paget's or hyperparathyroidism, which create uncontrolled hyperemia in large zones, or with arterial anoxia due to pulmonary disease such as emphysema, or with severe anemia or metabolic defects such as beriberi or Graves' disease, or in febrile illness. In cases of this latter group, the loss of myocardial efficiency is far less marked than in the former, for any given degree of symptomatology. In the cases with diminished cardiac work, symptoms, except for weakness or dyspnea on exertion, do not occur until the myocardium has become very inefficient. Any agent which restores part of the lost efficiency will have a striking effect in relieving the patient. In the cases with high cardiac output or work, symptoms may become severe while the myocardium still retains most of its efficiency, and treatment directed at restoring efficiency is relatively unimportant as long as the overloading persists. The relative ineffectiveness of digitalis in this last type is well-known.

It should be stressed that arterial hypertension imposes little work on the heart. The increase in mean pressure is rarely more than 60 or 70 per cent, but in mitral stenosis or emphysema mean pulmonic pressure may

increase three or four hundred per cent. Since increase in cardiac output usually raises pulmonic pressure with little or no effect on systemic pressure, the right ventricle again bears the brunt of the added burden. It is, therefore, not remarkable that right-sided failure is more often due to overloading, and less often due to simple myocardial inefficiency than is left-sided failure.

One of the outstanding discoveries made with the cardiac catheter is the observation of Sharpey-Shaeffer and McMichael that in some cardiacs, breathless even in the orthopneic position, a fall in venous pressure produced by bleeding or by cuffs which hold back the blood in the veins of the limbs, leads not to a fall but to a rise in cardiac output. This can only mean that these hearts were filled beyond the point at which increase in auricular pressure led to increase in systolic discharge. Previously it had been believed that the point of decreasing systolic discharge with increase in diastolic filling could not be reached with an intact pericardium, and therefore was merely a laboratory curiosity. It is now realized that in certain desperately ill cardiacs, bleeding or bloodless interference with venous return increases the output of the heart and diminishes the symptoms of pulmonic and hepatic engorgement. In normal persons, the cardiac output rises from 15 to 30 per cent on changing from the sitting to the recumbent posture; in severely ill cardiacs with diminished output, recumbency causes no rise and may even cause a further fall in output. Exercise and digestion have the same effect on output as does recumbency. It has long been known that although moderate exercise has very little effect on the systemic venous pressure in normal persons it leads to a rise in venous pressure in the early mild cases of heart disease in which cardiac output and basal venous pressure are normal; in severe failure of any type, venous pressure rises markedly on effort, and cardiac output may rise or fall.

McMichael has confirmed the observation that in normal men digitalis decreases both venous pressure and cardiac output, whereas in some patients with heart disease it raises output at the same time that it lowers venous pressure. He was struck by the resemblance of the effects of bleeding and of digitalis and concluded that digitalis in heart failure acts solely by diminishing venous tone. This may well be true of the cases in advanced low-output failure, those in whom rise in venous pressure causes a further decrease in cardiac output. It obviously cannot be true in ambulatory patients whose cardiac output rises with exercise or recumbency. In the latter group the disappearance of gallop rhythm, or a rise in vital capacity and definite clinical improvement may be caused by digitalis, and in such cases the only site of action must be in the heart. That digitalis has a beneficial effect on the function of the myocardium in failure is thoroughly proved by

work on isolated hearts and on isolated strips of heart muscle. The catheter technic permits observations only of the immediate effect of intravenous digitalis preparations. The shortening of systole and lengthening of diastole which the drug produces in many failing hearts probably permits a gradual recovery of the muscle. This will be reflected by a fall in pulse rate and improvement in the circulation which only become apparent many hours after full digitalization.

It is noteworthy that in constrictive pericarditis and in cor pulmonale McMichael was able to demonstrate that digitalis lowered venous pressure and cardiac output just as it does in normal persons in spite of the fact that the liver and great veins were already distended with blood. This proves that the peripheral action is important even when blood volume is high and the central venous reservoirs are full, and hence that the effect in reducing venous tone may be significant in many cases of severe heart failure.

In all types of heart failure there is a disproportion between the output of the heart and the flow of blood necessary to satisfy the circulatory needs of the body. When this comes on acutely, as in severe tachycardia of ventricular origin or in massive infarction, shock with normal or slightly raised systemic venous pressure and pulmonary edema may occur. Weakness pallor, or loss of consciousness may precede the signs of pulmonic engorgement. With prolonged bouts of auricular tachycardia, where the initial signs of shock are less, some days may lapse before pulmonic and hepatic engorgement and edema of the legs develop into the full-blown picture of congestive failure. With more gradual development of failure, nocturnal dyspnea may be the first symptom in sedentary people, and dyspnea on exertion in those leading more active lives. But regardless of etiology and speed of onset, and regardless of whether the basal cardiac output in the early stages is normal or elevated, in all cases of heart failure the rise in venous pressure on effort is abnormally great, and the cardiac output on effort insufficient for the needs of the tissues.

An inadequate cardiac output sets off the mechanism for increasing the venous return and blood volume, which mechanism is normally brought into play by hemorrhage, or by loss of fluid and electrolytes due to sweating, vomiting or diarrhea, or by severe trauma or burns. This mechanism operates in man, not only in heart failure, but in those conditions in which blood volume is low, proteinuria, malnutrition or liver disease with low serum albumin levels, in chronic anemias, and in prolonged undernutrition with normal blood protein but low blood volume. When the hemoglobin level falls below 40 per cent, the total blood volume appears to decrease strikingly. An increase in plasma volume would only reduce the hemoglobin content of

the blood per unit volume. Presumably, low viscosity alters pressure relations and fluid reabsorption in the capillary loops. In such cases, as with low blood volume due to low serum albumin, edema forms readily and cardiac filling is maintained only by a high venous tone in the peripheral bed. Under these circumstances even a small bleeding may cause fatal circulatory collapse, and rapid transfusion may precipitate pulmonary edema.

In all of these conditions, the most constant and striking feature is the conservation of sodium and of water. In many of these disorders the salt content of the sweat decreases, by as much as 50 per cent, and from the work of Conn, it seems clear that this is due to increased liberation of desoxycorticosterone by the adrenal cortex. Reabsorption of fluid and salt from the feces also becomes maximal, and the sodium loss in the urine, regardless of sodium intake, may drop below 50 mg. per day as long as circulatory insufficiency persists, the total daily loss from the body varying from 150 to 300 mg. unless sweating is excessive. A decrease in liberation of pitocin, the chloruretic hormone of the posterior pituitary, probably occurs, and Brun and his co-workers have shown that pitressin, the antidiuretic hormone, is liberated in increased amounts within a short time after producing a fall in cardiac output of normal men by having them upright but relaxed on the tilt-table. As Asmussen points out, the erect posture in itself creates latent circulatory failure. It is sufficient to stimulate the water-retaining mechanism. But to treat postural hypotension patients must be kept partially upright both day and night to achieve an increase in blood volume of half a liter or more and an obvious increase in the fluid in the intercellular spaces of the legs. Such an increase in blood volume and in tissue fluid volume which causes the clinical picture of congestive failure led to the concept of "backward failure." Now it is realized that even in constrictive pericarditis and tricuspid insufficiency, edema and venous distention are due to stimulation of the blood-forming and the salt- and water-retaining mechanisms which is a result of a decrease in the adequacy of the cardiac output. Conversely, the syncope at the onset of tachycardia may be regarded as due to the tissue turgor and blood volume being inadequate to force a rise in output from the embarrassed heart. In such cases pulse pressure and diastolic pressure rise as the venous engorgement and edema develop. What has been called forward failure is acute failure; what has been called backward failure is the chronic state, with the changes compensatory to inadequate cardiac output fully exhibited.

Stead and his colleagues have stressed the fact that edema formation may precede rise in venous pressure. They ignored the endocrine factor in salt excretion and ascribed edema formation to reduced sodium filtration rather than increased sodium reabsorption in the kidney. It is an important

fact that in patients with hypertensive and aortic valve disease, edema can occur with no rise in systemic venous pressure - that is, no failure of the right side of the heart or accumulation of blood in the great veins. Reichsman stressed the fact that venous pressure may rise before edema formation, when digitalized mitral fibrillators are taken off digitalis. In such patients, only recently compensated, blood volumes may be adequate to permit a rise of venous pressure as the effect of digitalis on venous tone wears off, and before the cardiac output falls to a critical level and fluid and salt retention begins. These are cases in which right ventricular failure occurs before that of the left side of the heart, so that systemic venous pressure rises before the cardiac output falls. The observations of Stead and of Reichsman are both acceptable; however, their theories are incomplete.

These findings are now considered in terms of therapy. Early in the management of a patient, the author and co-workers determine the etiologic factors, and if possible deal directly with these. To overlook Graves' disease, beriberi, arteriovenous fistulas, or constrictive pericarditis is to doom the patient to an avoidable catastrophe. But even earlier, an estimate must be made from skin temperatures in the hands and feet, from the pulse pressure, and from the vigor of the heart beat, whether cardiac output is elevated or is reduced. In the presence of cyanosis due to chronic emphysema, or pallor due to anemia, or any acute cardiac damage, reduction of blood volume or of venous return may cause severe systemic symptoms. Bleeding or digitalis must not be employed unless the absence of such factors has been proved. There is no routine treatment of heart failure; there can only be treatment of the patient, based on the etiologic and physiologic problems he presents and the conditions of life which he must face.

When arrhythmia is an outstanding feature, its treatment by digitalis or quinidine must be pushed cautiously but thoroughly and not too slowly. This is a chapter in itself, and will not be dealt with except to stress that with rates over 180 the heart muscle is subject to ischemic injury, and quinidine must be pushed rapidly in paroxysmal tachycardias with high rates. In fast fibrillators with mitral stenosis, the author prefers to begin with digitalis and usually makes no attempt to restore normal rhythm unless the condition seems to be predominately insufficiency, based upon the criteria of loud systolic murmur and marked auricular and apical pulsations.

In severe failure with low pulse pressure, large liver and normal hemoglobin, the removal of from 600 to 800 c.c. of blood is the most immediate therapy, and femoral bleeding is easy when arm veins are collapsed and the limbs cold. Bleeding also may be invaluable in less urgent conditions when the blood volume is obviously great and cardiac output not high. Diuresis

may not occur until after venesection in such cases. It must be emphasized that bleeding increases cardiac output in these cases by relieving the distended heart. The only emergency therapy of value except venesection is oxygen, preferably from a pressure mask if pulmonary edema is present. Prompt digitalization with glucoside administered intravenously, if divided doses are used to avoid overdosage, or treatment with ouabain, which can be given at half-hour intervals, takes two hours. Divided doses of digitoxin should be given at two-hour intervals, and digoxin and lanatoside at one-hour intervals in order to judge the effect of the drug. The author begins with half the expected full dose because this may be enough to cause coupled beats, and then gives quarter doses (0.1 mg. in the case of ouabain) until therapeutic effectiveness or toxicity occurs. The author does not expect to achieve success from digitalis in every case, and believes it possible to prove its effectiveness in less than half the patients with apex rates of 100 or less, whether fibrillators or regular. That it has beneficial effects in some of the others is true, but the value is not comparable with that of bleeding or of the mercurial diuretics. The latter are the mainstay in drug therapy, for they paralyze the mechanism for sodium conservation. Other diuretics cause the removal of water, but since they remove little sodium, the patient quickly regains his weight. Water ad libitum should be allowed the patient on low salt diet and mercurial diuretics, and the daily caloric intake should be kept at about 1200 calories, except in obese patients, until severe failure has been controlled. In the obese, 800 calories, half from protein are preferable.

Early ambulation and sitting up at mealtime are to be encouraged, but the patient should also be advised to lie as flat as possible for as much of the day as he can in comfort. The erect posture, long maintained, leads to salt retention even in normals and predisposes cardiacs to nocturnal dyspnea. Rest in the middle of the day and again before the evening meal is advisable in all chronic cardiacs to effect redistribution of blood and a maximal basal cardiac output at more frequent intervals than occurs when people are up all day. But sitting in a chair is more restful than the orthopneic position in bed, and even early in recovery short intervals of sitting improve the physical condition, minimize the risk of phlebothrombosis and seem not to retard recovery or diuresis. By reducing venous return the work of the heart is temporarily reduced and the salt-retaining mechanism does not seem to be stimulated by short periods of sitting or standing.

The commonest medical failures today are in the management of the ambulatory cardiac and the ambulatory diabetic. Both should be reduced to muscle and bone, with minimal panniculus; both should be on relatively low protein intake, to reduce the specific heat production and metabolic work due to protein. But cardiacs and diabetics need adequate amounts of protein

to protect the liver. The diabetic should be kept with a normal blood sugar and cholesterol; the cardiac who has a normal basal cardiac output should be kept with a normal blood volume and in negative sodium balance as long as he has any edema, or any symptoms of congestion of the lungs. This means that both diabetic and cardiac must learn to put up with some measure of privation and even weakness in order to retard to the fullest extent the progress of the disease. Today the doctor usually compromises and exchanges the day to day comfort or convenience of these patients for months, or perhaps for decades, or life.

Since July 1944, the author and associates have used rice, fruit juice, and sugar as the main dietary items for congestive failure, for acute nephritis, for ascites without parenchymal liver damage, and for hospitalized hypertensives. Milk, eggs, and butter have no place in the diet of hypertensives or of adults with coronary disease. All store-bought breadstuffs, cakes, crackers, candies, and breakfast foods must be eliminated because of their sodium content. Many foods, such as cottage and grated cheese, can be desalted by prolonged washing in running water; meat and vegetables of the leafy and root types can be desalted by twice boiling after dicing. Potassium chloride with a touch of ammonium chloride can be used to give a pleasant salty taste to many foods. Grains, flour, nuts, and beans are relatively low in sodium, sago, tapioca, and unsalted spaghetti are almost sodium-free. But however it is tried, obtaining a diet with less than 500 mg. of sodium is very hard on all patients and impossible for most wage-earners. And if the daily sodium loss is only 400 mg., the patient will put on a liter of edema fluid every month on a 500 mg. intake. On a 1 Gm. intake, he will put on a liter every five days. Reduced salt intake and mercurial diuretics are the present unsatisfactory solution of the dilemma. It is hoped that desalting technics can be developed which will permit the removal of sodium from the body through the feeding of insoluble emulsified sodium absorbents, thus making injections and toxic reactions unnecessary hazards in the management of chronically ill cardiacs. Cationic exchange resins offer promise in this direction. Diets with acid ash, and salt content over 1500 mg. per day, cannot be expected to reduce edema in severe failure, but even such regimes are effective in many ambulatory patients, and permit them to dispense with mercurials, or greatly reduce the frequency of injections. The author and associates have studied the use of pitocin and found that it has some effectiveness in various types of edema, but it cannot equal the mercurials in effectiveness.

Summary. Cardiacs with high basal levels of cardiac output, due to pulmonary, hemic, or vascular disorders, can be managed to some degree with oxygen, rest, and sedation and may be cured by correcting the underlying

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cause of the excessive blood flow; they respond only occasionally to digitalis, and usually should not be bled.

Cardiacs of all types, but particularly those who have not had abnormally high blood flow usually respond very well to regimes causing a negative sodium balance, that is, to diet and mercurial diuretics. Those with normal basal cardiac outputs may respond to digitalis and do well on this drug for many years. In emergencies they may be quickly relieved by bleeding, or by pressure breathing with oxygen.

The chief problem today is the maintenance of a low sodium intake and at times a negative sodium balance in the chronic cardiac able to earn his living or to enjoy an ambulatory existence. The clinical picture of congestive failure is essentially the result of compensatory mechanisms which increase blood volume and venous return; the symptoms can be controlled if the basal cardiac output is normal or less than normal by reducing blood volume and by maintaining normal body weight by diet and other methods of lowering sodium available to the body. Death from this type of congestive failure, like death from diabetic coma, is now preventable, but life may be so restricted as to make wage-earning impossible in the severe cases.

Future progress depends on dealing with the myocardial defects which underly most cases of heart failure. The investigator in the field of heart disease faces a large and fertile territory. (J. Mt. Sinai Hosp., N. Y., March-April '47 - W. Dock)

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The Failure of Massive Salicylate Therapy to Suppress the Inflammatory Reaction in Rheumatic Fever: Salicylates have been used in the treatment of rheumatic fever because of their effect in the relief of symptoms and because they are considered to act specifically against the disease process.

For symptomatic treatment in this disease the salicylates are very useful. Given in adequate doses during polyarthritis or high fever, they act effectively as antipyretics and analgesics. The analgesic effect of salicylates in the arthritis of rheumatic fever is indeed so rapid that its effect is occasionally taken as a therapeutic test in the differential diagnosis of the arthritides.

The present study is concerned with the advocated use of massive salicylate therapy based upon the concept that such treatment produces a specific effect against rheumatic fever. A shorter period of rheumatic fever infection and reduction in the severity of carditis have been claimed by the proponents of very large dosages of salicylates.

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There have been indications in the recent literature that salicylates may lower the blood sedimentation rate without relation to alteration of disease process. Rapoport and Guest showed that in 10 of 15 patients with elevated blood sedimentation rates, 4 of whom had rheumatic fever, the sedimentation rate decreased following salicylate therapy. When this treatment was discontinued, the sedimentation rate often began to rise toward its initial level. They also showed a decrease in the concentration of fibrinogen in the blood of these patients and suggested that this might be due to an effect of salicylate on the liver. The latter has been suggested elsewhere as the basis for the hypoprothrombinemia caused by the salicylates. Homburger reported similar results in patients whose increased blood sedimentation rates were caused by carcinomatosis.

These indications of a nonspecific effect of salicylates on the blood sedimentation rates are important for several reasons: (1) in all 3 clinical studies mentioned above the sedimentation rate was used as the criterion of the presence of an infectious process; (2) the fall of the sedimentation rate in massive salicylate therapy has been offered as evidence of specific suppression of the inflammatory process by the drug; and (3) massive doses of salicylates may interfere with the reliability of the sedimentation test which is usually considered as the most sensitive indicator of persistent rheumatic fever activity.

For the above reasons, and because adequate clinical testing of the effects claimed for massive salicylate therapy would require a prolonged study, it seemed particularly advisable to examine the rationale put forth as the basis of such treatment, namely, that high concentrations of salicylates in the blood suppress the inflammatory reaction in rheumatic fever.

Murphy observed 12 rheumatic fever patients under massive salicylate therapy with special interest in phenomena indicating inflammatory activity. The size of inflamed joints was determined frequently, and the skin temperatures over these joints were compared with the rectal temperatures. The sedimentation rates were also determined. The results of these measurements did not indicate any subsidence of the inflammatory reaction under the influence of massive salicylate therapy. In addition, Murphy observed in patients receiving this treatment such phenomena as freshly developing rheumatic fever nodules and, in one case, freshly occurring polyarthritis with electrocardiographic evidence of further heart involvement.

The studies reported here represent another approach to the question of whether salicylates suppress the inflammatory reaction in rheumatic fever. Preliminary observations were made of the effect of salicylate on elevated blood sedimentation rates in patients without rheumatic fever; thereafter,

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children with signs of active rheumatic fever carditis and leukocytosis as well as elevated sedimentation rates were observed during massive salicylate therapy.

The patients studied were in the wards of The Children's Seashore House for Invalid Children at Atlantic City and the Philadelphia General Hospital.

Six patients with pulmonary tuberculosis and 4 patients with rheumatoid arthritis were studied. The period of administration of salicylate differed among these patients according to the severity of their toxic symptoms. It was found that in 9 of these patients without rheumatic fever the sedimentation rates fell during salicylate treatment, and in 8 of these 9 patients the rate of decrease was of the order found in the patients with rheumatic fever.

These observations seemed to indicate that the fall in the blood sedimentation rates under massive salicylate therapy was not necessarily a manifestation of the specific action of salicylates in rheumatic fever. These observations did not, however, offer evidence to disprove a specific action of salicylates in high dosage against the rheumatic fever disease process, since there remained a theoretical possibility that salicylates in high dosage might produce a specific effect against the rheumatic fever disease process and a nonspecific effect on the blood sedimentation in other patients. An experiment was therefore planned which might offer some evidence on whether the lowering of the sedimentation rate in rheumatic fever patients was an indication of suppression of rheumatic fever activity in those patients.

Since leukocytosis provides another general indication of the persistence of inflammation, it was decided to institute massive salicylate therapy in rheumatic fever patients whose disease was so active that they would show not only an elevated sedimentation rate but also persistent leukocytosis, and to study the results of this treatment. The number of patients suitable for this study was sharply limited by the following considerations: (1) the rheumatic fever process must be sufficiently active for leukocytosis to continue for a few weeks; (2) the white blood cell count of the patient must not be affected by salicylates per se to the point of reaching normal limits; (3) the patient must not be severely affected by the toxic manifestations of large doses of salicylates. Five such patients were found. They were given massive salicylate therapy. The specific object was to see whether any patients would show evidence of persistent rheumatic fever activity despite such treatment and despite the consequent lowering of the sedimentation rate.

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The sedimentation rates in these cases reached normal limits under the influence of massive salicylate therapy, but the white blood cell count still afforded evidence of continuing activity of the rheumatic fever process in that the differential white blood cell count showed a shift to the left (an abnormal number of nonfilamented polymorphonuclear leukocytes). The resting pulse rate was elevated in 4 of the 5 cases, and in 2 of them the pulse rate showed a gradual rise over a period including that of the massive salicylate therapy.

In 4 of the 5 cases a definite rise in the sedimentation rate occurred soon after the cessation of salicylate therapy.

Among the rheumatic fever patients studied during the past 5 years at these 2 institutions, 382 were observed during some phase of activity of the rheumatic fever process as indicated by laboratory tests. Of these, 328 patients were under observation until the quiescence of the infectious process. The laboratory data obtained in this group of patients indicate that the sedimentation rate test, as used, was far more sensitive than the WBC count. Only in 6 cases (or less than 2 per cent) did the WBC count remain above 8500 after the sedimentation rate had descended to the level considered normal in each case.

It should be noted that the clinical course of the 5 patients reported here is not typical of all those for whom massive salicylate therapy was instituted. Even among the patients selected for this study on the criteria mentioned above it was found that in some the active rheumatic fever process began to subside shortly after the institution of massive salicylate therapy. In others, the depressing effect of salicylates on the peripheral WBC count, which has been described by other investigators, sufficed to lower the count to the normal range, although there were other indications of continuing activity.

This study constitutes no attempt to evaluate the effect of massive salicylate therapy in rheumatic carditis. Such an evaluation would involve prolonged study of patients in various categories of cardiac involvement. The purpose of this study was to examine the hypothesis that massive salicylate therapy suppresses the inflammatory reaction in rheumatic fever which is the rationale for this mode of treatment. (Am. J. M. Sc., April '47 - T. N. Harris)

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Use and Procurement of Rocky Mountain Spotted Fever Vaccine: Recently there has appeared some confusion in the indications for use and the proper procedure for procurement of Rocky Mountain spotted fever vaccine.

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It is recommended that the term, "Tick Fever Vaccine," not be used. Although "Tick Fever" is occasionally used as a synonym for Rocky Mountain spotted fever, it should not be so used because "Tick Fever" may be defined as any infectious disease transmitted by ticks, and the causative parasite so transmitted may be a rickettsia as in Rocky Mountain spotted fever, a bacterium as in tularemia, a virus as in Colorado tick fever, a spirochete as in relapsing fever, or a piroplasma as in Texas tick fever.

Geographical names have occasionally been given to diseases because it was thought at first that those diseases were sharply limited to circumscribed areas. Such was the case with Rocky Mountain spotted fever which, since its original designation, has been reported from nearly every state in this country. Although the mortality rate varies from region to region, no distinction should be made between the disease as it occurs in different areas. Therefore, in requesting vaccine no further designation other than Rocky Mountain spotted fever vaccine is necessary or desirable.

The seasonal incidence of Rocky Mountain spotted fever corresponds to the seasons in which the ticks are active.

The list of vectors, proved and potential, of Rocky Mountain spotted fever includes at least ten (10) species of ticks distributed in four genera.

In the northwestern region of the United States, Dermacentor andersoni is most prevalent from the middle of March to the middle of June; therefore, the disease in that region occurs from March to July. In the East, Dermacentor variabilis is most abundant from May to July with the highest incidence of disease occurring in June and July.

Chief reliance for protection of individuals should be placed upon the complete avoidance of ticks, but where this cannot be accomplished there should be a careful search of the body at least twice daily for ticks with the prompt removal of any found. The attachment of an infected tick for from four to six hours is probably necessary for transmission of the infection. Vaccination does not prevent development of the disease in all cases, but in those in which the disease does occur after vaccination, its severity is usually diminished.

It is not the policy of the Bureau of Medicine and Surgery to employ mass vaccination against Rocky Mountain spotted fever, but authority will be given for its use for individuals and groups of persons who, because of the nature of their duty, must spend considerable time in uncleared regions of the United States where there is great danger of acquiring Rocky Mountain spotted fever.

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All requests for Rocky Mountain spotted fever vaccine should be addressed to the Preventive Medicine Division of the Bureau of Medicine and Surgery, where the request will be reviewed and passed on to the Materiel Division. (Preventive Med. Div., BuMed)

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Studies on Histoplasmosis in a Rural Community: During the last 40 years less than 100 proved cases of histoplasmosis have been reported in the world literature. These few cases, nearly all fatal, cannot be considered a significant public health problem. However, it was found that a large proportion of the population in certain areas gave positive skin reactions to histoplasmin, a filtrate of Histoplasma capsulatum grown on a synthetic medium, and also that a definite association between the occurrence of positive skin reactions and pulmonary calcification existed. The hypothesis that human histoplasmosis may also exist in a mild form and may be an important factor in the etiology of calcified pulmonary lesions was advanced, and public health interest aroused.

Of the less than 100 cases of histoplasmosis reported in the world literature, 4, all fatal, occurred in Loudoun County, Virginia. The population, 16,000 white and 4,000 colored, is entirely rural; the only sizable community is Leesburg with a population of 1,700. The first case of histoplasmosis recognized in Loudoun County occurred in 1922 in a 4-year old girl living in the village of Hamilton. The second occurred in 1938 in an 11-month old girl living near Paeonian Springs. The next two cases occurred in 1945 in 6 and 8 year old brothers living in Ashburn. These cases and 2 cases in dogs also from Loudoun County were reported. They represent a disproportionately large number of cases in a small population.

In September, 1945, when the fourth human case of histoplasmosis was recognized, the authors began an intensive search for evidence of infection in man and animals in Loudoun County. Local physicians, nurses, veterinarians, and others were interested in the problem and they reported cases of suspicious illness in man and animals to the authors for clinical, mycological, and pathological study.

Eight hundred and eighty-six animals were captured and studied, and among these, only one rodent (Mus musculus) and one dog were found naturally infected with H. capsulatum. Seibold has found and reported upon two other naturally infected dogs in the same kennel as the infected dog found in this survey.

All infected dogs were associated with each other and the infected rodent was captured in the basement of the home where the dogs, which were later

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proved infected, had been kept some 19 months previously. The infected animals and infected human beings were distant from each other and no contact between them could be established.

Some 500 persons residing in the area where recently proved infection with H. capsulatum had occurred were studied and to date no evidence of human infection has been found. Of the 476 white persons surveyed, 83 per cent had a positive histoplasmin skin reaction at initial test, and 41 per cent had calcified pulmonary lesions. Persons who were histoplasmin-positive were older and had resided in Loudoun County longer than persons who were negative. Persons who had calcified pulmonary lesions were older, had resided in Loudoun County longer, and were more apt to have a history of tuberculosis than persons with no calcified pulmonary lesions. No direct association could be established between the occurrence of positive histoplasmin skin reactions and pulmonary calcifications.

Forty persons initially histoplasmin-negative and 58 persons initially histoplasmin-positive were retested from 3 to 8 months after the initial test. On retest 7 per cent of the formerly positive reactors became negative, but 55 per cent of the formerly negative reactors became positive. In all, the individual serial chest x-rays showed no change, and repeated medical studies gave no evidence of any suspicious illness either prior to or during the period of change in skin reaction.

To date no evidence of mild human histoplasmosis has been found in Loudoun County, Va. (Am. J. Pub. Health, April '47 - B. J. Olson et al.)

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Use of Trichophytin in Thrombo-angiitis Obliterans: The relationship of trichophytosis and peripheral vascular disease has been discussed by various authors. Studies were made which showed that a high percentage (93 per cent) of patients with thrombo-angiitis obliterans had clinical trichophytosis, but only 73 per cent of the controls had clinical trichophytosis. Naide showed that four times as many patients with thrombo-angiitis obliterans gave positive cutaneous reactions to trichophytin as those without the disorder. Migratory phlebitis as a result of trichophytosis is well known, and "vascular trichophytids" are also recognized.

The author states that it appears that trichophytin has not been used to any extent in the treatment of thrombo-angiitis obliterans, but that because of the dramatic response of 2 patients so treated by him during the past year, some attention should be given to

the possibility of using trichophytin as a therapeutic agent in this disease. Reports of the author's cases follow:

Case 1.--Mr. I. H., a Jewish man aged 36, who had had typical thrombo-angiitis obliterans for six years, was seen 15 March 1945 because of severe urticaria. In addition to the urticaria, he had a vesicular eruption on the hands and some scaling between the toes. He was given 2 per cent iodine crystals in benzene to use on the feet. Because of the possibility of the hand lesions being trichophytids, a trichophytin test was done. In 48 hours the patient showed a tender, erythematous, and edematous area of reaction of about 5 by 8 cm. He was seen again on 18 March 1945. The urticaria was about the same, but he remarked, "I don't know what you did to me the other day, but my feet are warm and comfortable for the first time in three or four years." The urticaria became so severe and the patient so mentally upset that he was hospitalized for about three weeks. The urticaria was controlled and the patient returned to work.

In July 1945 he had a recurrence of the symptoms of thrombo-angiitis obliterans and returned to his internist. He was sent to a surgeon for an examination for possible surgical intervention to relieve his symptoms. The surgeon did not feel that operation was indicated. At the suggestion of the surgeon and the internist the patient returned to the author who gave him trichophytin in a dilution of 1:240 once a week for four weeks and then trichophytin 1:120 once a week for four weeks. He was relieved of all symptoms of thrombo-angiitis obliterans after the second week of treatment, and he has remained so.

Case 2.--Mr. F. W., aged 46, went to the author on 13 September 1945, complaining of a scaling, vesicular eruption on the hands of six months' duration. In addition, he said that he had had thrombo-angiitis obliterans for about four years and that during the last year had been unable to walk without a cane because of the severe pain in his legs. His feet had been constantly cold, and the great toe on his right foot had been exceedingly painful. He had received various types of treatment for the thrombo-angiitis obliterans without any appreciable relief.

A trichophytin test was made, using trichophytin in a dilution of 1:30, and after forty-eight hours the patient reported the presence of a wheal the size of a silver dollar. He was seen on 20 September 1945. At this time he walked in without a cane and reported that he was having only a little pain. He has since been given trichophytin in a dilution of 1:240 once a week, and now he is completely free of all pain. Only a slight discoloration of the toes appears when the feet are in a dependent position.

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In these patients treated with trichophytin the improvement, both objective and subjective, was rapid and decided. It is suggested that, in some patients with thrombo-angiitis obliterans, at least part of the inflammatory mechanism is initiated by an allergic reaction to the products of fungi and that trichophytin be given a more thorough trial as a therapeutic agent. (Arch. Dermat. & Syph., April '47 - J. C. Holman, Jr.)

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(Not Restricted)

The Relation of the Size of the Inoculum and the Age of the Infection to the Curative Dose of Penicillin in Experimental Syphilis, with Particular Reference to the Feasibility of Its Prophylactic Use: A relatively small amount of penicillin sufficed to abort syphilitic infection in rabbits when administered during the incubation period of the disease.

The abortive dose, given as a single intramuscular injection in oil and beeswax, varied with the age of the infection:

(a) With a fixed intratesticular inoculum of 2000 spirochetes, the amount of penicillin necessary to prevent infection in half the animals remained at a constant level (from 1500 to 2000 units per Kg.) for 4 days. By the end of the second week more than seven times this dosage was needed; and by the sixth week, after the chancre had appeared, more than thirty times the amount was needed to obtain the same result. The progressive increase in the abortive dose of penicillin with the passage of time probably reflects the interim multiplication of organisms.

(b) Qualitatively similar results were obtained in rabbits inoculated intracutaneously with 2000 organisms. From 500 to 1000 units per Kg. sufficed to abort the infection in half the animals if given within the first 4 days. After 2 weeks the abortive dose had increased to 6000 units per Kg., and by the sixth week, after the chancre had appeared, it required 20,000 units per Kg. to abort the infection.

The abortive dose varied also with the size of the inoculum. In animals inoculated intracutaneously with 20, 2,000, and 200,000 spirochetes, and treated 4 days later, it required 200, 500, and 3,500 units per Kg., respectively, to protect half the animals, and the corresponding PD_{90} dosages were 500, 2,000, and 16,000 units per Kg.

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The present observations, indicating the ease of aborting experimental rabbit syphilis during the incubation period by a single injection of penicillin, are perhaps applicable to the prevention of the disease in man. (From material presented at the symposium, Recent Advances in the Investigation of Venereal Diseases, recently held in Washington, D. C., under the auspices of the Syphilis Study Section of the National Institute of Health, USPHS - H. Eagle et al. of the Laboratory of Experimental Therapeutics, USPHS and The Johns Hopkins School of Hygiene, Baltimore, Md.)

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Observations on the Treatment of Carcinoma of the Prostate by Orchiectomy: The treatment of advanced carcinoma of the prostate by androgen reduction through orchiectomy or the administration of estrogens as suggested by Huggins has stimulated much discussion regarding the results to be achieved by this form of therapy. During the past 4 years the clinical as well as the endocrine and chemical aspects of such therapy have been energetically investigated. The following conclusions are generally agreed upon: (1) androgen reduction offers the best prospect for the relief of symptoms due to secondary deposits of prostatic carcinoma; (2) a significant number of patients are dramatically improved, but many others obtain only partial relief; and (3) some patients show little or no improvement, the downhill course of their disease being unaffected by any form of endocrine change.

At present, three methods of endocrine control are in use: surgical castration, estrogen therapy, and a combination of these. There is at present no unanimity of opinion regarding the exact indications for the use of any one of these methods. This is explained largely because there has not been sufficient time in which to observe and compare a sufficient number of patients treated by each method. Carcinoma of the prostate often runs a long and unpredictable course and this adds greatly to the difficulty of properly evaluating any type of treatment. An added difficulty is the lack of knowledge regarding the endocrine and metabolic changes brought about by these forms of therapy. Further evidence regarding the problem will depend, therefore, on endocrine studies and continued clinical evaluation of patients treated by these methods.

This report concerns the clinical findings of patients with carcinoma of the prostate treated exclusively by orchiectomy during the past 4 years. Additional surgical procedures for the relief of urinary symptoms were also carried out whenever necessary. Thirty-five patients were studied and followed for from 6 months to 4 years, over half of them for more than 2 years. The patients varied in age from 53 to 87, the average being 70 years. Of the 35 patients, 20 had a positive microscopic diagnosis of carcinoma of the prostate,

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and in the remaining 15 cases the diagnosis was made by physical findings, elevated acid phosphatase, and roentgenographic evidence of bony metastases. Of the 35 patients, 23 showed evidence of metastases either by roentgenography or acid phosphatase or both, but 12 had no evidence of metastases. Of the 23 with metastases, 9 died within one year after orchiectomy, two within 2 years, and one 28 months after orchiectomy; 11 are living and relatively asymptomatic from 8 to 25 months after operation. Of the 12 patients without evidence of metastases, 5 are living from 6 to 30 months after operation, 3 died within the first year, one died in the second year, and 3 died after three years.

Thirty-one urologic operative procedures other than orchiectomy were performed in 22 of these patients. Cystotomy by suprapubic punch to effect constant drainage of the bladder was done in 11 patients who were admitted to the hospital with acute retention. Of this group one patient died of pneumonia after orchiectomy before any further procedure to free the bladder outlet could be carried out. Three patients were able to void after orchiectomy and the suprapubic opening could be dispensed with. One patient had a partial perineal prostatectomy to free the outlet of the bladder. The remaining 6 patients subsequently had transurethral resections.

Six patients had had a suprapubic prostatectomy prior to the development of carcinoma and 2 of these required further removal of tissue (transurethral resection) to free the outlet of the bladder. In 7 patients the prostate was explored through the perineum; one total and 3 partial prostatectomies were performed in 4 patients prior to orchiectomy, and 3 had a biopsy of the prostate through the perineum. Transurethral resection was carried out in a total of 10 patients. Three of these required a second transurethral resection at a later date. Suprapubic prostatectomy was carried out in 2 of the patients.

An analysis of the cases and the results of orchiectomy has been made from the following five aspects, namely, (1) relief of pain due to metastases, (2) improvement in well-being (appetite, weight, etc.), (3) metastatic changes seen by roentgenography, (4) improvement in urinary symptoms, and (5) changes in acid phosphatase:

1. Of the patients with metastases, approximately two-thirds experienced moderate to severe pain preoperatively. After removal of the testes dramatic and marked relief of pain was experienced by one half the patients and the other one half showed slight or moderate improvement. No patient of the group with metastases failed to show some improvement, temporary though it may have been in some cases. In practically all of the cases surgical castration was followed by amelioration of symptoms within 48 hours.

2. As might be expected, improvement in well-being and appetite paralleled relief of pain in almost all instances. There were also several patients

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not suffering from pain and with no evident metastases who showed an increase in weight, appetite, and general well-being. Improvement in well-being may be very rapid and dramatic.

3. In this series of 35 patients, 18 showed roentgenographic evidence of metastases. Examination of the chest, spine, and pelvis was carried out in each patient and other areas were examined whenever indicated. Metastases were observed in the spine and pelvis 18 times, ribs 9 times, pleura twice, and lung field twice. Repeated roentgenographic examinations were possible in 16 of these patients at various intervals after bilateral orchiectomy.

An exact evaluation of the changes occurring in the roentgenographic appearance of metastatic lesions is extremely difficult and requires that great care be taken both in the preparation and the interpretation of the films. They must be made under uniform conditions with repeated examinations in order to allow accurate comparison of the size, number, and density of metastases. Careful comparison of both preoperative and postoperative films must always be made, particularly when it appears that new bony metastases have occurred since orchiectomy.

There were no constant changes in the bones which could be interpreted as signifying regression, but most frequently the metastatic areas become more calcified and appeared more discrete. A number of times, however, the lesions became larger as well as more numerous and widespread. In a few patients there was no significant change, and only two showed a partial restoration of normal bone architecture. In one of these there was a remarkable diminution in the size of the metastases, almost all of the neoplastic areas being replaced by normal bone. This change had not occurred by one month after orchiectomy, but was noted on the second examination more than one year after operation. During this time the patient's clinical course had been extremely satisfactory. He had experienced complete relief from pain, had gained weight, and had shown marked improvement in urinary function.

Three months after bilateral orchiectomy in 2 patients having metastases to the lung fields these secondary deposits were greatly diminished in size, and the lungs appeared remarkably improved in one, and a similar but much less striking change was shown in the other. Of the 2 patients with metastases to the pleura, the metastases were unchanged in one after operation, and in the other showed diminution in size.

Several of the patients who showed a progression of metastases did so in spite of marked clinical improvement. One patient, previously free of metastases roentgenographically, developed them throughout the spine and ribs three months postoperatively and died shortly thereafter.

4. There have been several reports stating that decrease in the size of the carcinomatous prostate and improvement of urinary function are to be expected following androgen depression therapy. It has been the authors' experience that this favorable effect on urination cannot be expected in the majority of cases. Although a decrease in the size and softening of the original lesion was observed in about one third of the patients treated, only 5 showed a resulting improvement of urinary function and diminished residual urine. Three of these had been treated by suprapubic drainage because of severe retention prior to orchiectomy, and in these the retention was relieved, permitting withdrawal of the catheter and complete healing of the suprapubic sinus. Two others showed a marked reduction in residual urine soon after orchiectomy. In all of these cases the prostate showed diminution in size and became softer. The authors believe that if urinary symptoms are severe enough to suggest the need for operative interference, this should be performed at the same time as orchiectomy rather than waiting for possible improvement from the latter procedure alone.

5. It has been repeatedly observed that the elevated serum acid phosphatase of patients with metastatic carcinoma of the prostate decreases following androgen depression therapy. The decline is most rapid during the first week after orchiectomy, and thereafter a more gradual decrease occurs for the next 2 or 3 months. The 12 patients who showed no clinical or roentgenographic evidence of metastases had a normal acid phosphatase, that is, 4 units or less. Of the remaining 23 with metastases, 21 had acid phosphatase values above 4 units. All 21 patients displayed a reduction in acid phosphatase level after surgical castration, 12 of them ultimately returning to normal. In the authors' experience this is of no prognostic significance, since a number of the patients whose acid phosphatase became normal and remained within normal limits succumbed within from 3 to 10 months. On the other hand, in some cases a re-elevation of the acid phosphatase coincided with a clinical relapse and progression of metastatic involvement. The finding of a normal acid phosphatase in 2 of the patients with definite evidence of metastases is in keeping with the general experience of others. However, the serum acid phosphatase determination must be regarded as a valuable diagnostic aid, since a definitely elevated acid phosphatase (above 10 units) is almost never present in the absence of metastases.

Although the series reported is small, the authors believe that the cases are varied enough to represent an adequate cross section of the disease, its manifestations, and the results one may expect from orchiectomy as a method of treatment. Undeniably orchiectomy will prolong the life and comfort of a significant number of patients with metastases. In patients with advanced

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metastatic disease suffering severe pain and incapacitation, orchiectomy may result in dramatic improvement.

Unfortunately, there are few if any clinical or laboratory clues which enable one to foretell how any one patient will respond to surgical castration. However, the high percentage of immediately favorable results following this form of treatment makes its employment worth while in almost all cases.

The length of time during which a patient may be benefited by castration and remain free of pain varies considerably. The shortest period of improvement among these cases was 3 months, and the longest period of improvement to be followed by relapse lasted 24 months. Usually, the reappearance of pain was coincidental with rapid deterioration of the patient's general condition and was soon followed by death. In several such cases even large doses of stilbesterol failed to modify the downhill course of the patient or affect the pain.

The question of the optimal time for orchiectomy has remained unanswered. Many authors advise withholding this operation until metastases or symptoms thereof appear. Some believe that the general life expectancy may be prolonged if orchiectomy is performed early, regardless of the presence or absence of metastases. The possible beneficial effect of the operation on the local lesion as well as the possibility of delaying the appearance of metastases favor this opinion. It has been the authors' policy in most cases to perform orchiectomy whenever the diagnosis of carcinoma of the prostate is made, regardless of the presence or absence of metastases. (Am. J. M. Sc., April '47 - E. K. Landsteiner and H. P. Brown)

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Abstracts of Reports on Research Projects:

X-131
Rep. No. 4
17 Feb. '47

The Effect of Age and Region of Birth Upon the Relative Number of Naval Personnel Having Dental Replacements.

The dental records of some 70,000 men entering the Navy in 1942, when rigid naval dental standards were still

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nt.)

in effect, have been examined to determine the effect of age and region of birth upon the relative number of dental replacements. This sample unfortunately was not entirely confined to those persons meeting the naval dental requirements, but included members of the Fleet Reserve. Despite this lack of homogeniety in the sample, it could be concluded that:

The relative number of persons having either partial upper only, partial upper and partial lower replacements, or gold crowns, increases with age. The number of those having either jacket crowns, post crowns, removable bridges, or fixed bridges increases until they reach approximately 35 years of age, and then decreases after that age. In this sample as high as 14 per cent of the older age groups have fixed bridges and gold crowns. The other types of dentures mentioned are found in less than 4 per cent of any age group.

Persons born in the west south central region, i.e., Arkansas, Louisiana, Oklahoma, and Texas, have fewer fixed bridges and gold crowns than those born in other regions of the United States. This may be due either to better teeth or to less dental care available and lower per capita income in this region than in others, as shown in previous reports.

Upper teeth are replaced more frequently than are lower teeth. (Nav. Med. Res. Inst., Bethesda, Md. - C. A. Schlack et al.)

(Not Restricted)

X-540
Rep. No. 1
10 Mar '47

Design and Test of Oxygen Breathing Equipment for Use in the Recompression Chamber.

The breathing of pure oxygen shortens the decompression after dives and improves the treatment of caisson disease by lowering the partial pressure of nitrogen in the pulmonary alveoli and thus permitting more rapid diffusion of nitrogen from the body. The equipment now in use in the field for administering oxygen to a diver in a recompression chamber is not satisfactory. Constant-flow equipment wastes oxygen and increases the fire hazard by producing a high concentration of oxygen within the chamber. Most of this equipment is bulky, requires frequent adjustment, and is unpleasant to use because excessive inspiratory suction is required to obtain an adequate flow of gas.

X-540
(Cont.)

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The object of this study was to modify and test compact, reliable demand valves in the recompression chamber at the pressure under which oxygen is administered during the treatment of caisson disease.

The suction-flow characteristics of standard aviation diluter-demand regulators were found to be unacceptable at increased ambient pressure. Undesirably high suctions were required to obtain adequate flow of gas through an orifice designed for use with gases of lesser density.

Experimental demand valves being designed for the Army by engineers of a large corporation were tried. The initial tests in a recompression chamber revealed them unsatisfactory. After the valves were modified by minor alteration to increase the diameter of the orifice of a metal insert in the injector housing to compensate for the increase in gas density, a satisfactory flow at a desirable suction was obtained at ambient pressures of 73.4 pounds per square inch (165 ft.), 26.7 pounds per square inch (60 ft.), and 4.5 pounds per square inch (10 ft.).

These modified valves, with a breathing tube assembly and a type A-14 aviator's face mask, are considered superior to the breathing equipment now used in recompression chambers to administer oxygen or helium-oxygen to divers receiving decompression after a dive or for treatment of caisson disease. (Nav. Med. Res. Inst., Bethesda, Md. - R. Hayter)

NOTE: Those interested in seeing copies of the complete reports should address their request to the research activity from which the report originates.

Opinions or conclusions contained in these reports are those of the authors. They are not to be construed as necessarily reflecting the views or the endorsement of the Navy Department. Reference may be made to those reports marked "Not Restricted" in the same way as to published articles noting authors, title, source, date, project number, and report number. No part of the content of RESTRICTED reports may be published, reproduced, or referred to in articles for publication without permission obtained through the Bureau of Medicine and Surgery.

(Not Restricted)

Reactivation of the Naval Reserve: The Bureau of Medicine and Surgery has received communications from a large number of Reserve medical officers who express exceptionally keen interest in the Medical Department of the Navy, and urge the immediate adoption of a program that will assure Reserve medical personnel on inactive duty of the fact that they are an integral part of the Naval establishment.

In order to reactivate a strong Medical Reserve, in keeping with the Postwar Reserve Program, it will be necessary to reorganize Medical Specialists' Units and to obtain factual information on the professional qualifications of Reserve medical officers. In this connection the Navy Department has authorized a billet for a Reserve medical officer on full-time active duty in the Bureau of Medicine and Surgery and in each Continental Naval District. The duty of these Reserve officers is to assist in accomplishing the organization of an efficient and well planned Reserve Component of the Medical Department of the Navy.

Reserve medical officers (inactive), all of whom are on a purely voluntary basis, are asked to contact their Naval District Commandant and volunteer their assistance in connection with the promulgation of the Reserve recruiting publicity program, OPERATION NAVAL RESERVE (see page 2) which is planned to play an important part in the reactivation of the Naval Reserve.

Additional information concerning the medical Reserve program may be obtained by addressing the Bureau of Medicine and Surgery, Navy Department, Washington 25, D. C. (Personnel Div., BuMed)

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(Not Restricted)

Postgraduate Training in Anesthesiology: The Bureau of Medicine and Surgery announces a special course for training in anesthesiology at the University of Chicago School of Medicine, beginning 1 July 1947. This training is made available in connection with a Navy contract with the university covering a research project in anesthesiology. In general this training is designed to be 50 per cent clinical and 50 per cent research in anesthesiology and pharmacology. However, arrangements have been made whereby the medical officer may receive this training by devoting practically full time to anesthesiology and a minimum to pharmacology, or vice versa. If the trainee desires, it will be possible for him to work on a Master's Degree during the time he will be at the university. Previous experience in anesthesiology or pharmacology is desirable, but a candidate without such experience may be considered eligible if so recommended in the endorsement of his commanding officer.

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Requests for this training are desired from medical officers of the regular Navy. Reserve medical officers are eligible providing they have submitted a request for transfer to the regular Navy. Requests must be submitted in accordance with Bumed News Letter dated 24 May 1946, and must include a signed three-year agreement. It is recommended that requests for this course be made by despatch as soon as this notice has been received, and the official request should follow by regular mail. It is planned to notify the successful candidate by despatch prior to 15 June 1947. (Professional Div., BuMed)

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Advanced Training for Staff Assignments: The following material is intended to furnish information regarding the type, location, and description of staff-training courses for officers of the Medical Department of the Navy. These courses are now open to medical officers of the rank of commander and captain. Graduates may expect duty in various staff assignments and in the Medical Logistics System.

U.S. Naval War College, Newport, R. I.

Senior Course begins 1 July 1947, is of 11 months' duration, and may have one or two selected senior medical officers enrolled.
Mission: To indoctrinate naval personnel in a common concept of the exercise of command by providing opportunities for student officers to develop their abilities in the estimation of the situation leading to sound decisions, the formulation and interpretation of operational plans and orders, the supervision of the planned action, the utilization of the Naval Staff, the analytical study of Naval Operations, and the solution of Logistic Problems.

Logistics Course begins 1 July 1947, and is of 11 months' duration.
Mission: To train officers of the Navy for the performance of those functions of the military art embraced in logistics duties. The quota for medical officers is one or two.

National War College, Washington, D. C.

Course begins 1 September 1947, and is of ten months' duration.
Mission: To provide instruction to insure the nationally efficient development, organization, and employment of the Armed Forces and the utilization of the nation's resources to support the Armed Forces in the furtherance of national policy. The quota for medical officers is one or two.

(Not Restricted)

Industrial College of the Armed Forces, Washington, D. C.

Course begins 3 September 1947, and is of 10 months' duration.

Mission: (a) To train officers of the Armed Forces of the United States of America for duties involving all aspects of mobilization of the national economy, economic warfare, procurement planning, and procurement.

(b) To conduct studies in all aspects of mobilization of the national economy, procurement planning, procurement, economic warfare, and economic war potential of foreign nations.

(c) To evaluate the economic war potential of foreign nations.

(d) To promote among the members of the Armed Forces and in the nation at large an understanding of the ever-changing complex problems of mobilizing and administering the national economy for war.

(e) To foster a close relationship between the Armed Forces and civilian engineering, scientific, educational, and industrial groups in the study of social, political, and economic impacts of war.

The quota for medical officers is one or two.

Armed Forces Staff College, Norfolk, Va.

Course begins 1 September 1947, and is of five months' duration. Mission: To train selected officers of the Armed Forces in Joint Operations. The quota for medical officers is one or two. Quarters are available to officers assigned to this course.

Law at George Washington University, Washington, D. C.

Course begins each September and is of three years' duration. The purpose of making this course available is to provide legal training for selected medical officers who will perform medico-legal duties in the various offices and divisions of the Bureau of Medicine and Surgery.

Inquiries may be submitted to BuMed at any time regarding training in these special courses. (Professional Div., BuMed)

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Postgraduate Training in Public Health: There are three openings at the Johns Hopkins University, School of Hygiene and Public Health. The

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course, which is of eight months' duration and begins about 15 September 1947, leads to a Master's Degree in Public Health. The tuition fee of $700.00 will be provided by BuMed. The medical officer may take his degree in one of the following specialties: medical statistics, tropical medicine, industrial medicine or preventive medicine.

Requests from medical officers of the regular Navy are desired to reach BuMed prior to 1 July 1947. Reserve medical officers are eligible for consideration providing the request for training is accompanied by a request for transfer to the regular Navy. Requests should be submitted in accordance with Bumed News Letter dated 24 May 1946, page 23. (Professional Div., BuMed)

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(Not Restricted)

Reserve Medical Officers Needed for Affiliation with Organized Reserve Air Units: Reserve medical officers will be needed for the various units of the Organized Reserve during two weeks of active duty training in connection with the Naval Air Reserve Training program. Interested officers below the rank of captain are invited to communicate with the commanding officer of Naval Air Stations of the command in their immediate vicinity, for affiliation with an Organized Reserve unit. Naval flight surgeons are particularly desired. (Personnel Div., BuMed)

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Dental Reserve Officers' Annual Training Duty: Arrangements have been made for annual training duty at the U.S. Naval Dental School, National Naval Medical Center, Bethesda, Md., during the period commencing 2 June 1947 and ending 14 June 1947. The duty will consist of lectures, demonstrations, and conferences. Orientation tours which are designed to familiarize Naval Reserve dental officers with typical organizations of the Navy and Marine Corps will also be conducted.

The capacity of the Naval Dental School with respect to this training course is limited. Accordingly, the total number that can be accommodated is being apportioned among the naval districts.

Requests for assignment to this training duty should be submitted to the commandant of the naval district in which the officer maintains his official residence. (Assistant Chief of BuMed for Dentistry)

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Public Health Foreign Reports:

Disease	Location	Date	No. of Cases
Cholera	India, Calcutta	Mar. 2-15, '47	216 (93 fatal)
Plague	British E. Africa, Uganda, Mengo District	Feb. 23-Mar. 1, '47	1
	China, Fukien Prov., Tsinkiang	Dec. 29-Jan. 4, '47	21 (12 fatal)
	India, Cawnpore	Feb. 23-Mar. 1, '47	39
	Peru	January '47	40 (2 fatal)
	Turkey (in Asia) Urfa Prov., Akcakale	date report Mar. 14, '47	3 (3 fatal)
	Union of S. Africa	Mar. 2-8, '47	7
Smallpox	Burma	Feb. 15-22, '47	187 (59 fatal)
	China, Shanghai	Feb. 23-Mar. 1, '47	66
		Mar. 9-15, '47	103
	Egypt, Alexandria	Feb. 16-22, '47	12
	France, Paris	Mar. 1-15, '47	11 (1 fatal)
	India, Calcutta	Feb. 16-Mar. 15, '47	395 (306 fatal)
	Indochina (French), Cochinchina, Saigon	Mar. 2-8, '47	50
	Tunisia	January '47	211
Typhus Fever	Ecuador	February '47	66 (2 fatal)
	Eritrea	Feb. 22-Mar. 1, '47	65 (5 fatal)
	Guatemala	January '47	49 (9 fatal)
	Panama (Republic)	February '47	11
	Tunisia	January '47	40
Yellow Fever	Colombia, Antioquia Dept., Pavarandocito (region of)	date report Mar. 27, '47	3 (1 fatal)

(Pub. Health Reps., April 4, 11 and 18, '47)

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ALNAV 98 16 April 1947 (Not Restricted)

Subj: Destruction of Certain Lots of Thiamin Hydrochloride.

Survey and destroy all units of thiamin hydrochloride injection 0.05 Gm. (3/4 grain) per c.c., 5 c.c., stock number 1-472-410 BuMed Section Catalog of Navy Material with lot number 3107 manufactured by Reed and Carnrick and lot numbers 44775 and 45352 manufactured by Metropolitan Laboratories Inc.

--SecNav. James Forrestal

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ALNAV 102 18 April 1947 (Not Restricted)

Subj: Course in Aviation Medicine.

Applications desired to reach BuMed prior 15 June 1947 from medical officers regular and Reserve rank lieutenant (jg), lieutenant, lieutenant commander, for three months' course in aviation medicine at School of Aviation Medicine, Pensacola, Florida. Classes convene 8 September 1947. Quota 20. Reserve medical officers may apply who have minimum 18 months obligated service after completion of course. Reserve medical officers who have less than 18 months obligated service may apply provided they request transfer to regular Navy at same time request for aviation medicine submitted. Aviation medicine training provides basis for later assignment in aviation medical research or other specialties in the training program.

--SecNav. James Forrestal

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ALNAV 104 22 April 1947 (Not Restricted)

Subj: Warning re Dental Treatment for Dependents and Navy Civilians Going to Extracontinental Stations.

Dependents of personnel of the Navy and MarCorps, and civilian employees of the Navy and MarCorps are warned that dental treatment is not available from civilian or naval sources at most outlying stations outside the continental limits of the United States. Prior to departure from the continental limits all dependents and civilian employees and their dependents should receive a dental examination and have such dental treatment accomplished as is necessary to assure that they will not require dental treatment

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while at an outlying station. Order-writing authorities and officers issuing transportation to the dependents of naval personnel and civilian employees shall bring this Alnav to the attention of all personnel being ordered to or issued transportation to outlying stations.

--SecNav. John L. Sullivan

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Circular Letter 47-42 3 April 1947 (Not Restricted)

To: Medical Officers in Command, Naval Hospitals.

Subj: Weekly Census Report of Persons Confined (NavPers 3003), preparation of by Naval Hospitals.

Refs: (a) Manual for Naval Places of Confinement. (Appendix J-2)
(b) BuPers ltr Pers-585-AH.

This letter from the Chief of BuMed and the Chief of Naval Personnel, jointly, contains modifications of references (a) and (b) for U. S. Naval Hospitals in the submission of this report.

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Circular Letter 47-49 18 April 1947 (Not Restricted)

To: MedOfsCom, All Naval Medical Research Activities.

Subj: Hospital Corpsmen for MRA (Medical Research Assistants) Designations.

Ref: (a) Ltr Chief of Research Division to Research Units, BUMED-X-RR/ch dated 19 Aug 1946.

1. Reference (a) requested all research activities to submit a list of men who were qualified for designation as Medical Research Assistant (MRA). As a result of this request, eighty-two (82) hospital corpsmen so far have been designated.

2. In view of the fact that no formal course of instruction has been established nor personnel allowance authorized under the Hospital Corps Training Program for enlisted members of the Hospital Corps, who may wish to qualify as Medical Research Assistants (MRA), personnel assigned to medical

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research activities who qualify through on-the-job training in a research specialty (or specialties), may be recommended to this Bureau for approval of designation as MRA.

3. For the purpose of civilian educational accreditation, future assignment to duty, and possible evaluation toward advancement in rating, it is directed that a record be kept of special training and qualification in the field of medical research. When recommending a man for the designation MRA, this record shall be submitted to BuMed for incorporation in his official file jacket. An appropriate entry shall be made in the man's service record.

--BuMed. C. A. Swanson

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Circular Letter 47-50 21 April 1947 (Not Restricted)

To: All Medical Department Activities.

Subj: Civilian Awards Certificates; Recommendations For.

Ref: (a) SecNav ltr dtd 11 June 1946; Navy Department Bulletin of 30 June 1946, 46-1326.

This letter from the Chief of BuMed indicates the conditions upon which presentations of civilian awards certificates are made and states that consideration will be given to recommendations forwarded to BuMed by the addressees for awards to civilian individuals and organizations.

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Circular Letter 47-51 21 April 1947 (Not Restricted)

To: MedOfsCom, NavHosps

Subj: Veterans Administration Admission Procedure, Change in.

Ref: (a) 10E ltr, dated 26 Mar 1947, from Office of Chief Medical Director, Dept. of Medicine and Surgery, Veterans Administration, to Surgeon General, U.S. Navy.

Encl: 1. (HW) Copy of ref (a).
2. (HW) VA Form 10-2557.
3. (HW) VA Form 10-2567.
4. (HW) VA Form 10-2493.
5. (HW) VA Form 3-3542.

(Not Restricted)

This letter from the Chief of BuMed states that reference (a) outlines a change in the Veterans Administration admission procedure for VA patients which will be inaugurated immediately and that the enclosures are forwarded for information and compliance.

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Circular Letter 47-52 24 April 1947 (Not Restricted)

To: MedOfCom, U.S. Naval Hospitals; U.S. Naval Medical Supply Depots; National Naval Medical Center, Bethesda, Md.; Naval Medical Center, Guam, M.I.

Subj: Pay increases of ungraded employees.

Ref: (a) NCPI 195 (Rev. II).

Encl: 1. (HW) Six copies of NAVMED-1179 (Foreman Mechanic Personnel Record).

This letter from the Chief of BuMed contains instructions in connection with pay increases of ungraded employees and directs the addressees to submit certain information to arrive at BuMed by 15 May 1947.

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Circular Letter 47-53 25 April 1947 (Not Restricted)

To: All Ships and Stations

Subj: Limited Standard Supplement to BuMed Section, Catalog of Navy Material.

1. Automatic initial distribution of the Limited Standard Supplement to BuMed Section, Catalog of Navy Material, will be made to activities having active medical or dental personnel attached, except vessels of the Reserve Fleet, and vessels of the Active Fleet smaller than CL classification.

2. Activities indicated above, not receiving catalog supplement by 15 July 1947, or activities requiring additional copies, shall submit letter request to U. S. Naval Medical Supply Depot, Sands and Pearl Streets, Brooklyn 1, New York.

--BuMed. C. A. Swanson

Circular Letter 47-54 30 April 1947 (Not Restricted)

To: All Ships and Stations

Subj: Reciprocal Agreement Covering Hospitalization of Army and Navy Personnel, cancellation of.

Refs: (a) Par. 16B4, ManMedDept.
(b) Par. 313, ManMedDept.
(c) Par. 319, ManMedDept.
(d) Par. 4142.1, ManMedDept.
(e) Par. 4143.1, ManMedDept.
(f) Par. 4144, ManMedDept.
(g) BuMed CirLtr No. 44-91.
(h) Art. 1204, Navy Regulations.

This letter from the Chief of BuMed states that the reciprocal agreement between the War and Navy Departments covering hospitalization of active duty personnel will be terminated as of 30 June 1947. It indicates the policy, and gives instructions concerning the hospitalization beginning 1 July 1947 of active duty personnel of the Navy in Army facilities and of active duty personnel of the Army in naval medical activities. The instructions regarding the reciprocal agreements as contained in references (c), (d), and (e), and under lines 52 and 53 of (g) and any others which may conflict with this letter are canceled on 1 July 1947. Modification of the Manual of the Medical Department will be issued separately. The hospitalization of retired personnel of the Army and Navy will be handled as heretofore in accordance with instructions contained in references (a), (f), and (h). A copy of this letter in full appears in the 30 April Navy Department Bulletin.

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Circular Letter 47-55 1 May 1947 (Not Restricted)

To: All Ships and Stations

Subj: Nonstandard Medical and Dental Material Procured Locally, report of.

1. In order to maintain the Bureau of Medicine and Surgery Section of the Catalog of Navy Material as an effective instrument of the Medical Department of the Navy, it is essential that certain information be furnished the Bureau of Medicine and Surgery periodically.

2. Accordingly it is directed that there be submitted to the Bureau of Medicine and Surgery, Materiel Division, 84 Sands Street, Brooklyn 1, New York, annually by 10 July, a report of nonstandard items of medical and dental

(Not Restricted)

material which have been purchased locally three times or more during the fiscal year just ended and charged to the following sub-objects:

0891 - Medical and Surgical Supplies (except anesthesia gases, vehicles such as yeast, ginger ale, etc., prosthetic and orthopedic appliances, occupational therapy supplies and feed for laboratory animals)

0892 - Dental Supplies (except artificial teeth)

0991 - Medical and Surgical Equipment

0992 - Dental Equipment

3. The report shall be prepared as outlined below:

Item Name	M'fgr	No. of Times Purchased	Total Q'ty Purchased

--BuMed. C. A. Swanson

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(Not Restricted)

Disestablishment of U.S. Naval Hospital, Bainbridge, Maryland, Recommended: In a letter to SecNav, the Chief of BuMed has recommended that in view of the planned closing of the Naval Training Center, Bainbridge, Maryland, in the near future, the U.S. Naval Hospital, Bainbridge, Maryland be disestablished on or about 15 May 1947.

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(Not Restricted)

Transfer of Hospital Corps School from Bainbridge, Maryland, to Great Lakes, Illinois, Recommended: In a letter to SecNav, the Chief of BuMed has recommended that in view of the planned closing of the Naval Training Center, Bainbridge, Maryland, in the near future, the Hospital Corps School be transferred from that station to Great Lakes, Illinois, by disestablishing the U.S. Naval Hospital Corps School, Naval Training Center, Bainbridge, Maryland, on or about 9 May 1947, and establishing the U.S. Naval Hospital Corps School, Naval Hospital, Great Lakes, Illinois, on or about 9 May 1947.

The Chief of BuMed further recommended that the Medical Officer in Command, U.S. Naval Hospital, Great Lakes, Illinois, be assigned additional duty as Medical Officer in Command, U.S. Naval Hospital Corps School, Naval Hospital, Great Lakes, Illinois.

--BuMed. C. A. Swanson